



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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DOGMA
MINERALS PROGRAM
FILE COPY

January 22, 1991

John E. Laursen
Environmental Specialist
Chevron Chemical Company
Manila Star Route
Vernal, Utah 84078

Dear Mr. Laursen:

Re: Tailings Pond Reclamation, Vernal Phosphate Mine, M/047/007, Uintah County, Utah

This letter is in response to one sent from your office on November 14, 1990. The November 14, 1990 letter addressed several questions the Division had concerning the eventual reclamation of the mine's tailings pond. The Division is interested in pursuing some of these questions further.

The Division's primary concern is that an adequate decommissioning and reclamation plan be developed for the tailings facility. No plan currently exists. At the end of mine life, Chevron, or the current responsible party, will be required to reclaim the tailings facility to meet the 70% vegetation standard. Given the nature of the tailings material, this may not be possible without amending, in some fashion, the tailings. We will ask Chevron to begin evaluating the reclamation potential of the tailings via a well designed test plot program.

The test plot program should be developed as an amendment to the existing, approved MRP. It needs to include:

- 1) a location map and boundaries;
- 2) list of species and seeding rates to be applied;
- 3) type of amendments to be applied to the tailings;
- 4) method of cover analysis to be used;
- 5) time frame for plant evaluation and test plot program;
- 6) commitment to maintaining test plots throughout the evaluation period by either posting or fencing;

- 7) soils/tailings analysis of areas to be tested; and
- 8) metals analysis of areas to be tested.

A major factor in developing a final reclamation plan for the tailings concerns the requirements resulting from obtaining a groundwater discharge permit (GDP). We have spoken to the Bureau of Water Pollution Control concerning the GDP. Chevron Chemical will eventually be asked to develop one. This may require taking a different approach than simply seeding directly into the tailings. Your November 14, 1990 letter was insufficient in resolving the following questions:

- 1) What type of physical and chemical properties characterize the tailings material? Please supply the Division with the following in this regard:
 - a. evaluation of the nutrient and physical properties of the material by examining: organic matter, nitrate nitrogen, available phosphorus, exchangeable potassium, soil pH, cation exchange capacity, electrical conductivity, texture, sodium absorption ratio, selenium, boron, and saturation percentage;
 - b. evaluation of acid-base potential;
 - c. evaluation of EP toxicity analysis for the inorganics: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver;
 - d. evaluation for the total metals: aluminum, arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, mercury, molybdenum, nickel, silver, sulfur, titanium, and zinc. The total metals should be analyzed using the ICAP metals screen procedures or HYD procedures.

These tests should be made on dry tailings and representative of the tailings material in general.

- 2) What is the load-bearing capacity of the tailings at various locations within the pond?
- 3) What steps might be taken to increase the load-bearing capacity of the tailings?
- 4) What physical constraints exist in accessing tailings to reclaim them?
- 5) What procedure, if any, has been developed, for the contemporaneous reclamation of inactive portions of the tailings facility?

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Chevron Chemical Co.

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January 22, 1991

Please call me if you have questions regarding the above. Thank you for your assistance in resolving these concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "H. Shepherd", written in a cursive style.

Holland Shepherd
Reclamation Specialist

jb

M047007.1